Conference Preview

UPDATED
6 JANUARY 2011

7-9 FEBRUARY 2011 · HOUSTON, TEXAS

ARCTIC TECHNOLOGY CONFERENCE℠

AN OTC EVENT

Challenges for Today
Opportunities for Tomorrow

Join us at the inaugural Arctic Technology Conference!

Dear colleagues,

The Offshore Technology Conference (OTC) Board of Directors decided in 2009 to launch a new conference dedicated to the Arctic — the Arctic Technology Conference (ATC). On behalf of the ATC 2011 Program Committee, ATC sponsoring organizations and the OTC Board of Directors, it is my honor to invite you to this first Arctic Technology Conference.

Capitalizing on OTC experience, ATC is a truly international event focused on the cutting-edge technologies and innovative practices needed for exploration and production of energies in the Arctic, emphasizing respect for the people and the environment of this harsh region.

The Program will include senior industry executives and technicians who will share their vision on the development of these energies. Technical experts will present their knowledge and ideas on the exploration and production of the U.S., Canadian, Russian, and Norwegian onshore and offshore Arctic basins.

ATC will provide a world-class venue to present creative solutions to this challenging Arctic arena. With a highly specialized technical program of over 150 presentations, high-level speakers, networking events and exhibition, ATC will provide opportunities for gaining additional experience and expertise to oil and gas professionals who attend.

ATC will deliver a multidisciplinary program covering all aspects of Arctic activity. The program has been developed focusing on 7 key topical areas: Resources; Exploration Drilling; Production Drilling, Facilities and Export; Physical Environment; Logistics and Marine Transport; Regulatory and Environment. We hope you'll agree that this span of topics effectively encompasses the issues that need to be addressed today.

Finally, do not forget the afternoon receptions to network and share your views with colleagues. We hope you will make the most of this ATC, and I personally look forward to meeting you there.

See you in Houston in February!

Pierre-Alain Delaittre

Technical Program Committee

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Pierre-Alain Delaittre
Harchambe Consulting

Vice Chair
John Hogg
MGM Energy Corporation

AAPG
John Dolson
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MTS
Kerry Campbell
Fugro GeoConsulting, Inc.

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George Moridis
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SNAME
Rod Allan
Transocean Offshore Deepwater Drilling, Inc.

SPE
Han Tiebout
SBM Offshore

Liaison to OTC Technical Program Committee
Tom Gee
Weatherford

Liaison
Ed Stokes*
ConocoPhillips

Joe Fowler*
Stress Engineering Services

Helge Haldorsen*
StatoilHydro

NOT PICTURED

IEEE-OES
Claude Brancart*
Blue Sea Corporation

IEEE-OES
Hanumant Singh
Woods Hole Oceanographic Institution

SEG
John Eastwood
ExxonMobil

SNAME
Peter Noble
ConocoPhillips

SPE
Dominic Berta
ConocoPhillips

TMS
Rick Hill
EWI Microalloying

* Denotes OTC Board of Directors member

Experience the OTC's Arctic Technology Conference — register now

The burgeoning Arctic arena offers a host of opportunities for companies that can solve the complex environmental, physical and regulatory challenges it presents. Take your company or career further by registering to attend the dynamic Arctic Technology Conference. ATC boasts a top-quality technical program with speakers representing industry-leading companies as well as an exhibition and networking opportunities.

Program highlights

- Plenary Session on Addressing Arctic Aspirations and Rejuvenating Arctic Exploration: Less Ice, More Hydrocarbons
- 130 Oral Presentations with topics including
  - ▲ Pipelines
  - ▲ Geohazards
  - ▲ Icebreaking and shipping
  - ▲ Vessels
  - ▲ Ice loads
  - ▲ Exploration drilling
  - ▲ Ice management
  - ▲ EER
  - ▲ Regulatory topics and more
  - ▲ Structures
  - ▲ Ice & Snow Properties
  - ▲ MetOcean
  - ▲ Operations
  - ▲ Emmissions
  - ▲ ISO 19906
  - ▲ Arctic Petroleum Basins
- 17 Posters
- 2 Topical Breakfasts, 4 Topical Luncheons and a lunch in the Exhibition Hall

Exhibition

If you're looking for suppliers or the latest technologies available for the Arctic, you won't want to miss the ATC exhibition. Meet face-to-face with vendors, compare products and services, and see the latest offerings. While you're on the exhibition hall floor you can view the poster sessions and enjoy refreshment breaks.

About ATC

Founded in 1969, the Offshore Technology Conference (OTC) is the world's foremost event for the development of offshore resources in the fields of drilling, exploration, production and environmental protection. The Arctic Technology Conference (ATC) is built upon OTC's successful multidisciplinary approach, with 14 technical societies and organizations working together to deliver the world's most comprehensive Arctic event.

A program committee comprising geologists, geophysicists, engineers and academicians from the world's top E&P companies and universities has ensured the importance and value of attending ATC for professionals responsible for energy operations in harsh Arctic environments.

It's easy to register for ATC

- Register online at www.ArcticTechnologyConference.org
- Or, download a PDF of the registration form at www.ArcticTechnologyConference.org and return it by fax or mail

Attendees can pick up their badge on-site at the George R. Brown Convention Center Grand Ballroom, pre-function area starting at 12:00 on Sunday, 6 February.

Registration Type	On or before 18 January	After 18 January
Members *	US $595	US $695
Nonmember	US $745	US $845
Exhibition Only	US $50	US $50
One-Day Member	US $275	US $275
One-Day Nonmember	US $375	US $375
Student Member	US $50	US $50
Student Nonmember	US $75	US $75
Guest	US $75	US $75
Topical Breakfasts	US $35	
Topical Luncheons	US $50	

Registration fee includes admittance to the plenary, oral and poster sessions and exhibition. Special event tickets and the Proceedings on CD are available for an additional fee.

* Member indicates a member of any of the ATC sponsoring or endorsing organizations. See list on page 15.

To ensure a secure conference, photo identification (passport or driver's license) will be required for entrance into ATC.

Hotel accommodations

Hilton Americas-Houston is the official ATC hotel. Please mention Arctic Technology Conference when reserving your room. Reservations are due by 10 January 2011. To make reservations:

- Make reservations online at www.americashouston.hilton.com/atc
- Download a housing form from www.ArcticTechnologyConference.org and fax/mail as directed

Houston airports

- **William P. Hobby Airport (HOU)**
  7800 Airport Blvd.
  Houston, Texas 77061
  +1 713 640 3000

Distance from the convention center: 12 miles
Drive time: 20 minutes
Cost: US $15.00-$20.00 / taxi;
US $18.00 (one-way) shuttle *(prices subject to change)*

- **George Bush Intercontinental Airport (IAH)**
  2800 North Terminal Road
  Houston, Texas 77032
  +1 281 230 3100

Distance from the convention center: 25 miles
Drive time: 30 minutes
Cost: US $35.00-$45.00 / taxi;
US $25.00 (one-way) shuttle *(prices subject to change)*

For general assistance or questions, contact AAPG at convene@aapg.org or call +1 918 560 2617.

Purchase special event tickets

Seating is limited, so we encourage you to purchase special event tickets in advance. Look for this symbol throughout this Preview to identify ticketed events.

Technical Program

MONDAY

07:15-08:45 / Topical Breakfast / Room 320

TICKET REQUIRED

Tickets are US $35

Lawson Brigham,
Distinguished Professor of Geography & Arctic Policy, University of Alaska Fairbanks, and a Senior Fellow at the Institute of the North in Anchorage

The Arctic Council's Arctic Marine Shipping Assessment: An Overview and Road Map Forward

The Arctic Marine Shipping Assessment (AMSA) of the Arctic Council was conducted between 2005 and 2009. Canada, Finland and the United States led the effort under the Council's Working Group on Protection of the Arctic Marine Environment. In this luncheon you'll hear a review of the findings and recommendations of this major Arctic study and also a look ahead to the challenging implementation strategies of a selection of the AMSA recommendations.

09:00-10:30 / Plenary Session

Chairs: P. Delaittre and J. Hogg

Mark Shrimpton,
Senior Associate, Socio-Economic Services, Stantec Consulting Ltd., Canada

Addressing Arctic Aspirations

This presentation will help companies planning and implementing Arctic activities learn how to facilitate positive relationships with local people. Mark will review best practice responses to the aspirations and concerns of Arctic peoples related to petroleum and mining activity. The presentation will describe and explain typical local expectations and review initiatives that have facilitated resource access in the Arctic and other Northern regions. His talk is based on work in Canada, Greenland, Norway and Russia.

Marc Blaizot,
Senior Vice President, Total, France

Rejuvenating Arctic Exploration: Less Ice, More Hydrocarbons

The Arctic areas, located north of the Polar Circle, offer significant potential for new hydrocarbon discoveries (25% of the world is "Yet to Find"). Until now, exploration has been quite limited due to many climatic constraints, although very important finds have been made in Alaska, on the Yamal Peninsula and in the Barents Sea (both in Russian and Norwegian sectors). Starting from this scattered geological evidence, we will attempt to identify and forecast the huge remaining prospectivity of these environmentally fragile arctic zones where extensive international cooperation will be essential both for exploration and, if successful, developments.

11:00-12:20 / Morning Oral Sessions

Physical Environment: Ice and Snow Properties

- **Cone Penetration Testing in Polar Snow:** A. McCallum (Scott Polar Research Institute); A. Barwise, R. Santos (Gardline Geosciences)
- **Allowable Loading of Drill Rigs on Frozen Muskeg:** J. Oswell (Naviq Consulting Inc.); S. Stancliffe, V. Karambelkar, M. Wood (Imperial Oil Resources Limited); R. Coutts (Ardent Innovations Inc.)

Physical Environment: Codes and Standards

- **Assessment of International Standards for Safe Exploration, Production and Transportation of Oil and Gas in the Barents Sea:** G. Cammaert (DNV Research and Innovation)
- **Limit State Design Methodology for Offshore Pipelines against Ice Gouging — Industry Guidelines from the Ice Pipe JIP:** G. Davies, K. Mørk, M. Marley (DNV)
- **The Arctic Regulatory and Stakeholder Experience:** G. Pavia, S. Blue (UMIAQ)
- **Arctic Standards — A Comparison and Gap Study:** G. Ghoneim (DNV)

Physical Environment: DOE

- **Effect of Residual Oil Saturation on Recovery Efficiency during Polymer Flooding of Viscous Oils:** K. Kamaraj, G. Zhang, Y. Liu, R. S. Seright (PRRC, New Mexico Tech)
- **North Slope Decision Support System — Multi-Objective Planning for Ice Road Routes:** S. Bourne (PBS&J); J. Haleblian (Algoloma Systems); A. Tidwell, W. E. Schnabel (University of Alaska); K. Brumbelow (Texas A&M University)
- **North Slope Decision Support System — Technological Aspects:** S. Bourne (PBS&J); J. Haleblian (Algoloma Systems); K. Brumbelow (Texas A&M University); A. Tidwell, W. E. Schnabel (University of Alaska)
- **Snow Management to Augment Fresh Water Supplies in the Arctic:** S. Berezovskaya (Institute of Northern Engineering, University of Alaska Fairbanks)

Physical Environment: Geohazards

- **Geotechnical Investigations of the Clay Soils on the Oil and Gas Condensate Perspective Structures of Okhotsk Sea Shelf:** N. A. Kuten (Projectiniai Tyrimai, Ltd, St. Paul, MN, United States); D. Zdobin (Sanct Petersburg State University, Sanct Petersburg , Russian Federation)
- **Integrated Methodology for Mapping and Monitoring Permafrost and Seasonally Frozen Ground:** G. R. Walter, M. Necsoiu, S. A. Stothoff (Southwest Research Institute)
- **Ice-Soil-Pipeline Interactions Using Coupled Euler-Lagrange (CEL) Ice Gouge Simulations — Results from DNV Ice Pipe JIP:** R. Banneyake, M. Hossain, A. Eltaher, T. Nguyen, P. Jukes (MCSK, Inc.)

Technical Program

12:30-13:45 / Topical Luncheon / Room 332 TICKET REQUIRED
Tickets are US $50

Hazel Munoz,
Community Relations Representative, ConocoPhillips Alaska Western North Slope Operation
A Message from the People of the Arctic
Hazel serves as a liaison between the Alpine Oilfield, nearby village of Nuiqsut and other villages within the arctic slope region of Alaska. The Alpine field is the United States' only industrial facility completely on Native owned land.

Ms. Munoz's background made her uniquely qualified in this role. Growing up in Alaska's north easternmost village of Kaktovik, on the Beaufort Sea coast, Hazel is part of a generation of Native Alaskans raised in the advent of the Alaska Native Claims Settlement Act. The Arctic Slope region boasts North America's largest oilfield, Prudhoe Bay, and is steeped in mass quantities of other natural resources such as coal and natural gas. As such, the region holds a history of extreme interest from industry and government agencies. This provided for a real life education in the social and political climate surrounding industrial development.

Hazel's heritage is Inupiat Eskimo. She lives in Anchorage, working a "slope" schedule, whereby her time is split between ConocoPhillips Alaska headquarters in Anchorage and its Alpine field, with regular visits to Nuiqsut.

Ms. Munoz will share her experience growing up in two worlds: one striving to uphold an ancient indigenous lifestyle — with all its beauty and traditional ways — and that of the 21st century energy sector.

12:30-13:45 / Topical Luncheon / Room 320 TICKET REQUIRED
Tickets are US $50

Michael Borrell,
Senior Vice President Eastern Europe, Total, Paris, France
Contributions of Total S.A. to the Russian Arctic
TOTAL has many years of experience operating in Arctic conditions. This experience dates back to exploration wells in the Canadian Artic Islands in the 1970s and extends to more recent adventures in the U.S. Beaufort Sea, the Norwegian Barents Sea and onshore production from the Karyaga field in the Timan-Pechora Basin. The long experience and the TOTAL Group's expertise in developing large complex fields and difficult LNG projects has led to the selection of TOTAL, together with Statoil, as the principal partners of Gazprom for the development of the huge Shtokman field in the Russian Barents Sea. The development of the Shtokman field leads the Group's drive to build a significant position in the resource-rich Russian Arctic region and will be described during the address. Experience gained during the Shtokman development will provide a strong basis for TOTAL to build its position going forward.

14:00-16:50 / Afternoon Oral Sessions
Physical Environment: Metocean

- **A Climatological Study of Winds, Waves and Sea Ice during the 1999-2010 Open Water Seasons of the Beaufort and Chukchi Seas:** R. A. Weinzapfel, J. Spain, G. Harvey, J. Dykas (ImpactWeather, Inc.); J. Andrews, L. Clamp (ASRC Energy Services)
- **A Model for Waves-in-Ice and Sea Ice Dynamics in the Marginal Ice Zone:** D. Dumont, L. Bertino, S. Sandven (Nansen Environmental and Remote Sensing Center); A. Kohout (NIWA)
- **Wave Propagation at Marginal Ice Zone:** F. Petrie, B. Rousse (OCEANIDE); J. M. Cholley (TOTAL)
- **Break**
- **Application of the Buoy Network in the Barents Sea:** J. Mathisen (Fugro OCEANOR); J. Bidlot (European Centre for Medium Range Weather Forecasts)
- **Consideration of Long-Term Natural-Climatic Factors in the Russian Arctic Energy Resources Development Strategy:** A. Tsunevskiy (Institute of Energy Strategy)
- **North Slope Trends in Storminess, Shoreline Erosion and Ice:** N. J. Sultan, K. W. Braun (PND Engineers, Inc.)

Arctic Regulatory Governance Panel
Moderators: S. Childs (Shell); E. Heggelund Tørstad (DNV)
Panelists: J. Walker (BOEMRE); S. Anders Eriksson (PSA); B. Dixit (NEB); J. T. Hammeken-Holm (Bureau of Minerals and Petroleum); E. Saebo (DNV)

The development of regulatory requirements for Arctic exploration and production must keep pace with the associated technology development. Experience has consistently incorporated industry collaboration with authorities in Arctic countries. The harmonization of the requirements through intergovernmental panels similar to the IPCC may be one of many options.

This Regulatory Regulatory Panel will address the issues involved in writing and maintaining the regulations governing Arctic petroleum exploitation, noting the significant variations of environmental conditions in the regions of interest.

The presentations will illustrate the past and current governance in Arctic design, construction, operations, R&D, and the anticipated future developments. Risk mitigation efforts and stakeholder concerns will be discussed for a viable and safe Arctic in line with practical "ALARP" principles.

Technical Program

Logistics and Marine Transport: Escape, Evacuation and Rescue (EER)

- **Enhanced Arctic Lifeboat Design and Operation:** A. M. Barr, A. Browning (Transocean Offshore Deepwater Drilling, Inc.); E. J. Sorensen (Nadiro); C. J. McHardy (Det Norske Veritas); P. Schmidt (Fassmer GmbH & Co. KG)
- **Feasibility of Escape, Evacuation and Rescue for Facilities in Arctic Shear Zone Environments:** M. Totten, A. Marsden (Shell International Exploration and Production)
- **The Design of Hovercraft to Support Offshore Operations in the Beaufort and Chukchi Seas:** J. Gifford, M. Cox, R. Barton (Griffon Hoverwork Ltd.)
- **Break**
- **Criteria for the Next Generation of Cold Regions Evacuation Systems:** G. Igloliorte, B. Quinton (BMT Fleet Technology)
- **ARKTOS Shear Zone Evacuation Craft Design Development:** T. A. Hall (Hall Marine Design Ltd.); B. H. Seligman (ARKTOS International, S.A.)
- **Stereographic Analysis of Aerial Photographic Imagery for Arctic Development and Technology Planning:** W. Spring (Bear Ice Technology Inc.); M. Hansen (Shell); J. Smith (Aerometric)

TUESDAY

07:45-09:15 / Topical Breakfast / Room 320

TICKET REQUIRED

Tickets are US $35

Bill Scott,
Manager, Arctic Center, Chevron Canada Limited

Beaufort Sea Floating Exploration Drilling — Then and Now

The presentation will address the successful history of offshore Arctic floating exploration drilling in the Canadian Beaufort Sea from the mid 1970s till the end of the 1980s — a period in which 38 wells were drilled from floating drilling systems. The various drilling systems (drilling rigs and marine support fleets) will be discussed along with many of the key insights and knowledge gained during this period. This experience remains unique to the present day and provides a firm foundation for the challenges as industry moves to deeper water in the Beaufort Sea and other Arctic basins around the world. Some of the key challenges associated with the current phase of Arctic exploration drilling will be addressed, and how past experience can address and overcome these challenges.

09:30-12:20 / Morning Oral Sessions

Resources: Circum-Arctic Geoscience of Petroleum Basins

- **U.S. Geological Survey Circum-Arctic Resource Appraisal:** D. L. Gautier (U.S. Geological Survey)
- **Russian Arctic Petroleum Resources: Challenges and Future Opportunities:** A. Zolotukhin, V. Gavrilov (Gubkin Russian State University of Oil and Gas)

Technical Program

- **Tectonic History and Petroleum Geology of the Russian Arctic Shelves:** S. S. Drachev (ExxonMobil International Ltd.); N. A. Malyshev (Russian State Oil Company); A. M. Nikishin (Moscow State University)
- **Production of Light Oil from a Shallow, Frozen Reservoir: A Predevelopment Case Study of the Umiat Oil Field, Northern Alaska:** C. Hanks, P. McCarthy, J. Mongrain, A. Dandekar, (University of Alaska); A. Huckabay, V. Bangia (Renaissance Alaska, LLC) (Department of Petroleum Engineering, University of Alaska)
- **Break**
- **Petroleum Systems of the Russian Western Arctic Basins:** T. Kiryukhina, A. Stoupakova, G. Ulyanov, N. Kiryukhina, D. Norina, I. Panarin, A. Suslova, A. Kusov, R. Sautkin, I. Kurasov (Moscow State University, Moscow)
- **Petroleum Prospects of the Canada Basin, Arctic Ocean:** A. Grantz (Consulting Geologist); P. E. Hart (U.S. Geological Survey)
- **Resource Appraisal Technology for Undiscovered Arctic Petroleum:** R. White (U.S. Geological Survey)

Regulatory and Environment: ISO 19906

- **ISO 19906 — An International Standard for Arctic Offshore Structures:** W. Spring (Bear Ice Technology Inc.); G. A. Thomas, D. Blanchet (BP); R. McKenna (R. F. McKenna and Assoc.)
- **Ice Actions in ISO 19906 — Overview:** T. Kärnä (Norwegian University of Science and Technology); R. Frederking (Canadian Hydraulics Centre); K. Shkhinek (St. Petersburg State Polytechnical University)
- **Probabilistic Ice Loads Assessments for Arctic Regions: Inputs for Calibration of ISO 19906:** M. Fuglem, P. Stuckey, I. Jordaan (C-CORE)
- **Risk-Based Calibration of Action Factors in the New ISO 19906 Arctic Offshore Structures Standard:** M. A. Maes (Blade Energy Partners); G. A. Thomas (BP Exploration)
- **Break**
- **Reliability, Limit States and Action Factors for ISO 19906:** G. A. Thomas (BP Exploration Operating Company); F. G. Bercha (The Bercha Group); I. Jordaan (Ian Jordaan & Associates)
- **Overview of Case Studies for Draft ISO 19906:** G. A. Thomas (BP Exploration Operating Company); D. Masterson (Chevron Canada Resources); W. Spring (Bear Ice Technology Inc.)
- **Use of the ISO 19906 Arctic Structures Standard:** R. McKenna (R. F. McKenna & Associates)

Logistics and Marine Transport: Vessels

- **Drillship Heating and Ventilating Challenges in Arctic Environments:** S. Brittin, A. Browning, A. M. Barr (Transocean Offshore Deepwater Drilling, Inc.); J. Davis (Eldridge Engineering Group); C. J. McHardy (DNV); K. Choo (DSME)
- **Dynamically Positioned Vessels in the Arctic:** A Comprehensive Research and Development Program for Key Technologies: A. Wassink (GustoMSC)
- **Design Considerations for an Arctic Intervention Vessel:** T. E. Berg, B. O. Berge (MARINTEK)
- **Experience from Vessels Operating in Ice in the Double-Acting Principle:** G. W. Wilkman (Aker Arctic Technology Inc)
- **Break**
- **Preparations Required for Switching to Ultra Low Sulfur Diesel in Marine Propulsion and Onboard Auxiliary Engines:** B. Scherz (DNV)
- **Use of Jack-Up Drilling Units in Arctic Seas with Potential Ice Incursions during Open Water Season:** C. Wang, M. Quah (Keppel Offshore & Marine Technology Centre); P. G. Noble, R. Shafer, K. A. Soofi (ConocoPhillips)

Production Drilling, Facilities and Export: Pipelines I

- **Qualification of Fiber Wrapped Steel Pipe for High-Pressure Arctic Pipeline:** M. M. Salama (ConocoPhillips Company)
- **Arctic and Harsh Environment Pipeline Trenching Technologies and Challenges:** P. Jukes, U. Panapitiya, S. Jafri, A. Eltaher, S. Kenny (IMV Projects Atlantic)
- **Small- and Full-Scale Testing of Flexible Pipes in Cold Environment for Arctic Use:** C. Gabet, S. Chicheportiche, O. Mesnage, C. Taravel Condat, R. Vivet (TECHNIP)
- **Pipeline Routing and Burial Depth Analysis Using GIS Software:** T. King, R. Phillips, C. Johansen (C-CORE)
- **Break**
- **Considerations in the Application of Horizontal Directional Drilling to Pipeline Construction in the Arctic:** J. D. Hair (J. D. Hair & Associates, Inc.)
- **Reinforced Thermoplastic Composite Pipe (RTCP) for High-Pressure Gas/Liquid Arctic Pipelines — A Viable Alternative to Steel?** S. Catha, K. Bethel, M. F. Kanninen, R. B. Stonesifer (Smart Pipe Company, Inc.); E. V. Ausman (Polarconsult Alaska)
- **Analysis and Solutions for Warm-Up of Insulated Offshore Arctic Pipelines during Winter Construction:** B. Eisler, M. Mckee (INTECSEA)

14:00-16:50 / Afternoon Oral Sessions

Exploration Drilling: Drilling

- **Integral Use of Advanced CFD Simulation Tools in the Design of Arctic Offshore Installations:** B. Hekkelstrand, E. S. Gaaserud, J. Dalheim, S. Nodland (Scandpower Risk Management); B. Rezvani (WorleyParsons); V. C. Blusanovics (Innovarisk Consulting LP)
- **Deepwater Drilling for Arctic Oil and Gas Resources Development: A Conceptual Study in the Beaufort Sea:** N. Pilisi, M. A. Maes, D. B. Lewis (Blade Energy Partners)
- **Drilling Rigs in Arctic Deep Temperature Environments — Design and Operation Challenges:** T. Kipker (Bentec Drilling & Oilfield Systems)

Technical Program

- **Break**
- **Diagenetic Methane Hydrate Formation in Permafrost: A New Gas Play?** A. Johnson, M. D. Max (Hydrate Energy Int'l)

Physical Environment: Ice Loads

- **Influence of Structural Geometry on the Ice Pressure Distribution on Vertical Structures:** B. Sand (Norut Narvik Ltd.); L. Fransson (Luleå University of Technology)
- **Approach to Performance, Operability and Risk Assessment of the Shtokman Floating Platform Ice:** P. Liferov, G. Le Marechal, M. Albertini, M. Metge and E. ter Brake (Statoil, Norway)
- **Continuum Modeling of Ice Gouge Events:** K. Pike, A. Fatemi, C. Rossiter, D. Seo, S. Kenny (Memorial University)
- **Break**
- **An FE Model of Permafrost with Thermosyphon Protection:** J. Xu (MCS Kenny)
- **First-Year Ridge Loads on Moored Offshore Structures:** D. Molyneux (OCEANIC Consulting Corp.); A. Derradji-Aouat (NRC-CNRC); J. M. Cholley (Total E&P)
- **Numerical Simulations of Ice Interaction with a Moored Structure:** M. Sayed, A. Barker (Canadian Hydraulics Centre, National Research Council)

Physical Environment: Ice Management

- **State of the Art in Satellite Surveillance of Icebergs and Sea Ice:** D. Power, P. Bobby, C. Howell, F. Ralph, C. Randell (C-CORE)
- **Ice and Iceberg Management for Shtokman Field:** E. Coche, P. Liferov, M. Metge (Shtokman Development AG)
- **Near Real Time Iceberg Detection and Sea Ice Classification Using Satellites — Status, Potential and Limitations for the Offshore Industry:** K. Harnvig (Center for Ocean and Ice, Danish Meteorological Institute)
- **Break**
- **Ice Management for Support of Arctic Floating Operations:** J. M. Hamilton, C. Holub, D. A. Mitchell, T. Kokkinis (ExxonMobil Upstream Research Company)
- **Real-Time Pack Ice Monitoring Systems — Identification of Hazardous Sea Ice Using Upward Looking Sonars for Tactical Support of Offshore Oil and Gas Projects:** T. Mudge, R. Chave, M. Stone, A. Kanwar, A. Bard, J. Buermans (ASL Environmental Sciences Inc.)
- **Green Ice Management — Enabling Arctic Exploration and Reducing Its Environmental Impact:** Å. Rohlén, U. Hedman (Rederi AB Transatlantic)
- **New Techniques for Measuring Current, Waves, Ice Draft and Floe Size in the Arctic Ocean Using Bottom-Mounted Acoustic Profilers:** B. A. Magnell, L. Ivanov (Woods Hole Group, Inc.); D. B. Driver (BP Americas, Inc.)

Production Drilling, Facilities and Export: Pipelines II

- **3-D Continuum Simulations to Determine Pipeline Strain Demand Due to Ice-Gouge Hazards:** S. P. Lele, J. M. Hamilton, M. Panico, H. Arslan, K. Minnaar (ExxonMobil Upstream Research Company)
- **Alaskan Beaufort Sea Pipeline Design, Installation and Operation:** G. A. Lanan, T. Cowin, B. Eisler (IntecSea)
- **Corrosion Issues of Arctic Pipelines and Flowlines:** W. L. Trimble, D. Chew (Fluor Enterprises)
- **Break**
- **Well, You've Drilled 'em. Now Can You Produce 'em? Panarctic Oils Ltd's Test Program — The Drake F-76 Project:** J. G. Bomba (Technip USA); R. J. Brown (RJ Brown Deepwater, Inc., a Technip Company)
- **Leak Detection in the Arctic — How It's Different:** E. J. Farmer (EFA Technologies, Inc.)
- **Reliability of Power Supply in Remote BGV/RGV Stations along the Pipeline — A Key Factor for Arctic Pipelines Operation:** J. Gropper (Ormat Power, Inc.)
- **10 Years of Sub Arctic Subsea Projects — Stepping Stones for Arctic Development:** S. Allen (Technip)

Wednesday

07:45-09:15 / Topical Breakfast / Room 320

TICKET REQUIRED

Tickets are US $35

Stewart B. Nelson,
Oceanographer, author, lecturer and historian, Florida

Rediscovering the World's First Arctic Submarine: Nautilus of 1931

In 1931, Australia-born adventurer Sir Hubert Wilkins took a decommissioned WWI submarine, extensively modified for under-ice operation and christened the Nautilus, to the Arctic icepack. The Wilkins-Ellsworth Trans Arctic Submarine Expedition was marked by controversy from its inception and suspected sabotage by crew members forced the project to be abandoned and the submarine scuttled in a Bergen fjord in 1,138 feet (347 meters) of water. Dr. Nelson was co-leader and scientific advisor of Project Nautilus 2005, a submersible dive expedition that successfully re-discovered and documented the world's first Arctic submarine. He will provide an illustrated breakfast presentation that recounts both Sir Hubert's 1931 expedition and his re-discovery of the historic Nautilus.

09:30-12:20 / Morning Oral Sessions

Production Drilling, Facilities and Export: AUVs

- **Risk Management for Autonomous Underwater Vehicles Operating under Ice:** G. Griffiths, M. P. Brito (National Oceanography Centre)
- **HUGIN 1000 Arctic Class AUV:** E. Gustafson, Ø. Engelhardtsen, B. Jalving (Kongsberg Maritime); C. Hancock (Kongsberg Underwater Technology, Inc.)
- **AUV- and Satellite Imagery-Based Ice Management around Critical Infrastructure:** E. Gustafson (Kongsberg Maritime); C. Hancock (Kongsberg Underwater Technology, Inc.); R. Hall (Kongsberg Satellite Services (KSAT)
- **Pressure Ridge Shapes and Slope Angles from Multibeam Sonar Data:** P. Wadhams, N. Toberg, M. Doble (University of Cambridge)
- **Break**
- **Robust Robots for Arctic Exploration:** T. J. Voegele (Robotics Innovation Center, German Research Center for Artificial Intelligence)
- **Ice Class Autonomous Underwater Vehicle Development:** A. Kleiner, J. Cheramie (C & C Technologies); R. Raye, J. Dean (Shell Exploration and Production)

Regulatory, Environment: Emissions

- **Using Exercises to Advance Approaches to Response for Oil in Ice Environments:** K. Hansen, M. Lewandowski (U.S. Coast Guard R&D)
- **Numerical Prediction of Spilled Oil Behavior in the Sea of Okhotsk under Sea Ice Condition:** H. Yamaguchi (University of Tokyo); K. Ohshima (Institute of Low Temperature Science, Hokkaido University); N. Nakazawa (Systems Engineering Associates, Inc.)
- **Developing Treatment Products for Increased Microbial Degradation of Petroleum Oil Spills across Open-Water Surfaces:** G. Kjeilen-Eilertsen, S. Westerlund (IRIS Biomiljø, IRIS - International Research Institute of Stavanger); J. Jersak (Biologge AS)
- **Development of High-Speed Aerial Ignition Techniques for in Situ Burning:** T. A. Preli (Shell International E&P); A. A. Allen (Spiltec Inc.); D. Glenn (Grasshopper Aviation)
- **Break**
- **Behavior of Oil Spills in Ice and Implications for Spill Response:** D. Dickins (DF Dickins Associates, LLC)
- **Application of New Radar Sensor Technology for Enhanced Safety and Oil Spill Detection through All Phases of Operations in the Arctic Environment:** A. Havro, P. Isaksen (Sea-Hawk Navigation AS)
- **Understanding and Mitigation of Underwater Sound in the Arctic:** J. M. Ward (Shell International E&P Inc.)

Production Drilling, Facilities and Export: Operations

- **Umbilical Technology for Arctic Projects:** D. Fogg (DUCO Ltd. - Technip Umbilicals)
- **Neural Network Driven Real-Time Bit Optimization Improves Developmental Drilling Performance:** M. P. Frenzel (Smith International Inc.)
- **Offloading from Arctic Terminals:** B. Maddock (ExxonMobil Development Co); B. Foote (Akac Inc.)
- **Requirements for Data Quality in Remote Drilling:** J. I. Ornaes (National Oilwell Varco)
- **Break**
- **Well Architecture and Well Operating Procedures on Khariaga Field, Russia:** Y. Boyer (TEPR)
- **Leak Detection Systems and Challenges for Arctic Subsea Pipelines:** B. Eisler (INTECSEA)
- **Explosion Safety in Arctic Environment:** J. Dalheim, S. Nodland (Scandpower); V. C. Blusanovics (Innovarisk Consulting LP); B. Rezvani (WorleyParsons)

Production Drilling, Facilities and Export: Structures I

- **Using Resistance Heating to Create Full-Scale API RP2Z CTOD Samples:** M. Gallagher (Edison Welding Institute); S. Babu (The Ohio State University)
- **Circular FPSO for Arctic Deepwater:** N. Srinivasan, M. S. Sridhar (Consultant for DSI)
- **Alternative Concepts to Gloryholes for Protection of Subsea Infrastructure in Ice-Prone Regions:** F. Ralph, T. King, A. Zakeri (C-CORE)
- **Properties of Steels and Weldments for Low Temperature Applications:** M. Karlsen, I. Kulbotten, K. Bakken (Statoil ASA)

Technical Program

- **Break**
- **Disconnectable Arctic Spar:** A. Sablok, M. Ramachandran, J. Kim (Technip)
- **A Planning Model for Architecture and Operations:** O. Bannova, L. Bell (SICSA, University of Houston)
- **A New Modularized Approach for Arctic Production Islands:** K. Braun, W. Gunderson, M. Berg (PND Engineers, Inc.)

12:30-13:45 / Topical Luncheon / Room 320 TICKET REQUIRED

Tickets are US $50

David Lawrence,
Executive Vice President, Exploration and Commercial, Shell Upstream Americas
Meeting the Challenges of Exploration in Arctic Environments

Mr. Lawrence will identify some of the technical, commercial, environmental, political and social challenges of the Arctic region. He will outline the role technology plays in meeting these challenges and discuss the enablers and differentiators necessary to be successful in Arctic Exploration and Production.

14:00-16:20 / Afternoon Oral Sessions

Logistics and Marine Transport: Icebreaking and Shipping

- **Experience of Air Bubbling System in Ice Navigation and Future Possibilities:** G. W. Wilkman (Aker Arctic Technology Inc.)
- **The Use of PC Ice Rules in Azimuth Thruster Engineering:** K. R. Lindborg, T. Rauti (Rolls-Royce Oy Ab)
- **Arctic Mine Sea Lift and Marine Terminal Solutions:** G. R. Watters (PND Engineers, Inc.)
- **Potential for Airborne LiDAR Bathymetry in Arctic Operations and Engineering:** J. C. Wilson (Fugro Pelagos)
- **Global Warming and Globalisation — The North East Passage (NEP) — A Viable Shipping Alternative between Europe and Asia!** M. H. Westvik, B. Kvamstad, H. Lindstad, E. A. Holte, (MARINTEK)

Panel: The Future of Arctic Exploration

- **Mike Peacock,** Exploration Manager, ExxonMobil/Imperial Oil
- **Anatoly Zolotukhin,** Deputy Director of International Affairs, Gubkin University
- **Bob Fryklund,** Vice President IHS CERA Energy Research
- **David Lawrence,** Executive Vice President, Exploration, Shell
- **Don Gautier,** Research Geologist, United States Geological Survey
- **Dr. Tony Dore,** VP Exploration North America,

Exploration Drilling Onshore: Gas Hydrates

- **Evaluation of Long-Term Gas Hydrate Production Testing Locations on the Alaska North Slope:** T. Collett, M. Lee, K. Lewis (U.S. Geological Survey); R. Boswell, K. Rose (U.S. Department of Energy); B. Anderson (West Virginia University)
- **Methane Gas Production from a Mount Elbert Core Sample: Experimental Observations and Numerical Simulations:** T. J. Kneafsey (Lawrence Berkeley National Laboratory)
- **Impact of Exchange Kinetics on the Injectivity of Liquid CO_2 into Arctic Hydrates:** M. D. White (Pacific Northwest National Laboratory); S. Silpngarmlert (ConocoPhillips)
- **Evaluation of the Hydrate Deposit at the PBU L-106 Site, North Slope, Alaska, for a Long-Term Test of Gas Production:** G. J. Moridis, M. T. Reagan, M. Kowalsky, K. Boyle, K. Zhang (Lawrence Berkeley National Laboratory)
- **Simulation of Arctic Gas Hydrate Dissociation in Response to Climate Change:** M. T. Reagan, G. J. Moridis (Lawrence Berkeley National Laboratory); S. M. Elliott, M. Maltrud (Los Alamos National Laboratory)
- **Geomechanical Performance Analysis of Potential Long-Term Tests of Gas Production from Hydrate Deposits in North Slope, Alaska:** J. Rutqvist, J. Kim, M. T. Reagan, D. Yang (Lawrence Berkeley National Laboratory)

Production, Drilling, Facilities and Export: Structures II

- **Deepwater Arctic — Technical Challenges and Solutions:** R. Aggarwal, R. D'Souza (KBR/Granherne)
- **Multi-Year Ice Model Tests on Caissons with Downward Breaking Cones:** D. M. Fenz, J. Ding, T. Kokkinis (ExxonMobil Upstream Research Company)
- **Efficient Combination of Numerical Simulations and Ice Basin Testing in the Design Process of Moored Structures in the Ice:** A. Jensen, B. Bonnemaire (Barlindhaug Consult); O. Ravndal, T. Lundamo (Statoil)
- **Cathodic Protection Design Consideration for Offshore Structures in the Arctic Environment:** C. P. Weldon (C. P. Weldon & Associates, Inc.)
- **Sensitivity Considerations for Overturning Moment Calculations in the High Arctic, Deep Water Offshore Environment:** J. Blunt, V. Garas, O. Esenkov (ExxonMobil Upstream Research Company)
- **Development of Performance-Based Testing Specifications for the Arkutun-Dagi Friction Pendulum Bearings:** D. Fenz (ExxonMobil Upstream Research Company); S. Slatnik (ExxonMobil Development Company); M. C. Constantinou (State University of New York at Buffalo)
- **Design of a Floating Platform Hull for Arctic Conditions in the Barents Sea:** G. Le Marechal, P. Anslot, P. Liferov, S. Le Guennec and Z. Mravak (Statoil, Norway)

Technical Program

Arctic Technology Conference Poster Sessions

Monday – Tuesday / 10:30-18:00
Wednesday / 10:30-14:00

- **Tapping the Exploration Potential of Offshore Arctic Alaska:** J. L. Shepard, R. C. Scheidemann, R. A. Foster, M. D. Newell, C. C. Teff, M. W. Roffall, A. M. Macrander (SEPCO)
- **Diagenetic Methane Hydrate Formation in Permafrost: A New Gas Play?** M. D. Max, A. H. Johnson (Hydrate Energy International, Inc.)
- **Frost Heave of Chilled Gas Pipelines: Physical and Numerical Modeling:** G. Piercey, N. Volkov, C. Johansen, A. Zakeri, R. Phillips (C-CORE)
- **Geophysical and Geological Investigations of Submarine Permafrost Geohazards in the Southern Beaufort-Mackenzie Delta, NWT, Canada:** G. De Pascale (Fugro William Lettis and Associates, Inc.); S. Solomon (Geologic Survey of Canada); W. Pollard (McGill University)
- **Integration of Multiple Data Types for Geohazards Survey Planning, Canadian Beaufort Sea:** J. A. Thomson, J. Dingler (BP America)
- **Site Investigation Results for the Shtokman Field Development Project, Barents Sea, Russia:** E. Cauquil, (TDO/TEC/GEO, Total); E. Coche, O. Bublik (SDAG)
- **Barents Sea: Seabed Conditions and Their Implications for Foundation Design and Installation:** B. Klosowska, S. de Wit (Fugro Engineers B.V.)
- **Applications of Airborne GeoSAR Mapping in Alaska:** J. Jenkins, (GeoSAR, Fugro EarthData)
- **New Satellite Constellation for Offshore Ice Coverage and Drift Monitoring:** R. Chiles, N. Kellerman (Fugro Geospatial); R. N. Baker (Fugro NPA Satellite Mapping)
- **Economic and Technical Considerations for Intelligent Field Project Delivery:** D. Newman (Emerson Process Management)
- **An Alternative Methodology for Assessing the Adequacy of Arctic Offshore Structures:** R. I. Basu (ABS); G. Igloliorte, C. Daley (BMT FTL)
- **Challenges in Developing a Robust, Coordinated, and Expedited Science-Based Environmental and Regulatory Review for a Large Diameter Natural Gas Pipeline from the North Slope of Alaska:** M. D. Myers, E. Hatleberg, M. M. Crosley (State of Alaska)
- **A Joint Industry Project in Support of the New ISO19906 Standard on Arctic Structures:** G. Cammaert, R. H. Lande (DNV Research and Innovation)
- **Arctic Information Management in Scope of ISO 19906:** B. Kvamstad (MARINTEK)
- **The Linkage between Modularization and Logistics:** M. McKenna, M. Anzelon (WorleyParsons)
- **The Growing Importance of Coatings Selection for Operations in the Arctic:** T. Stein, I. Fletcher, M. Halliday (International Paint)
- **Advancement in Technology of Drilling Fluids Equipments and Application with Remedies to Environmental Problems in the Arctic Region:** U. Okonkwo (Federal University of Technology Owerri); T. Geehan (M-I SWACO)

ATC at a glance

All events will take place at the George R. Brown Convention Center. Use Entrance B for easiest access.

DATE/TIME	EVENT	LOCATION
Sunday, 6 February		
12:00–17:00	Registration	Sub Prefunction Area
Monday, 7 February		
07:00–17:00	Registration	Grand Ballroom, Prefunction Area
08:00–09:00	Continental Breakfast	Grand Ballroom, Prefunction Area
09:00–10:30	Plenary Session	Grand Ballroom B
10:30–18:00	Exhibition	Exhibit Hall B3
10:30–11:00	Refreshment Break	Exhibit Hall B3
10:30–18:00	Poster Sessions	Exhibit Hall B3
11:00–12:20	Oral Sessions	Grand Ballroom A, B, C and Room 310
12:30–13:45	Topical Luncheon	Room 320
12:30–13:45	Topical Luncheon	Room 332
14:00–15:00	Oral Sessions	Grand Ballroom A, B, C and Room 310
15:00–15:30	Refreshment Break	Exhibit Hall B3
15:30–16:50	Oral Sessions	Grand Ballroom A, B, C and Room 310
17:00–18:00	End-of-Day Reception	Exhibit Hall B3
Tuesday, 8 February		
07:00–17:00	Registration	Grand Ballroom, Prefunction Area
07:45–09:15	Topical Breakfast	Room 320
08:00–09:00	Continental Breakfast	Grand Ballroom, Prefunction Area
09:30–10:50	Oral Sessions	Grand Ballroom A, B, C and Room 310
10:30–18:00	Poster Sessions	Exhibit Hall B3
10:30–18:00	Exhibition	Exhibit Hall B3
10:50–11:20	Refreshment Break	Exhibit Hall B3
11:20–12:20	Oral Sessions	Grand Ballroom A, B, C and Room 310
12:30–13:45	Exhibition Luncheon	Exhibit Hall B3
14:00–15:00	Oral Sessions	Grand Ballroom A, B, C and Room 310
15:00–15:30	Refreshment Break	Exhibit Hall B3
15:30–16:50	Oral Sessions	Grand Ballroom A, B, C and Room 310
17:00–18:00	End-of-Day Reception	Exhibit Hall B3
Wednesday, 9 February		
07:00–12:00	Registration	Grand Ballroom, Prefunction Area
07:45-09:15	Topical Breakfast	Room 320
08:00–09:00	Continental Breakfast	Grand Ballroom, Prefunction Area
09:30–12:20	Oral Sessions	Grand Ballroom A, B, C and Room 310
10:30–14:00	Exhibition	Exhibit Hall B3
10:30–14:00	Poster Sessions	Exhibit Hall B3
12:30–13:45	Topical Luncheon	Room 320
12:30–13:45	Topical Luncheon	Room 332
14:00–16:20	Oral Sessions	Grand Ballroom A, B, C and Room 310

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- Society of Mining, Metallurgy, and Exploration (SME)
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